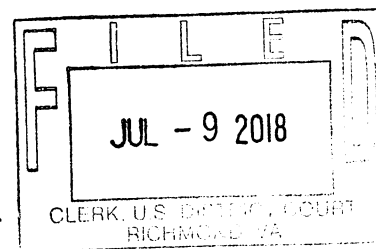


IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Richmond Division



ROBERT BENEDICT,

Plaintiff,

v.

Civil Action No. 3:17-cv-109

HANKOOK TIRE COMPANY
LIMITED, et al.,

Defendants.

MEMORANDUM OPINION

This matter is before the Court on HANKOOK TIRE COMPANY LIMITED'S AND HANKOOK TIRE AMERICA CORPORATION'S MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, MOTION FOR NEW TRIAL (ECF No. 458). The motion will be denied in part and granted in part.

BACKGROUND

I. Procedural Context

In this products liability action, Robert Benedict sued Hankook Tire Company Limited ("HTCL") and Hankook Tire America Corporation ("HTAC") for the production and distribution of an allegedly defective tire. HTCL and HTAC are herein referred to collectively as "Defendants" because, throughout the proceedings, the parties have done so.

Although Benedict initially pursued several theories of liability, at trial, he pursued only a negligent manufacturing claim

against Defendants. See Third Am. Compl. 4-5. A jury trial was held from March 5, 2018 to March 9, 2018, and the jury returned a verdict for Benedict of \$37,835,259.23. Defendants moved for judgment as a matter of law during trial under Fed. R. Civ. P. 50(a). Trial Tr. 426-28. Defendants now seek judgment as a matter of law under Fed. R. Civ. P. 50(b) or, alternatively, a new trial under Fed. R. Civ. P. 59.

II. Factual Context

A. Stipulated Facts

The following recitation of facts stems from the parties' factual stipulations, which were entered into evidence as an exhibit and read to the jury at trial. Trial Tr. 420-21, 425.

This case involves the "November 14, 2014 rollover of a 2007 Kenworth cement truck being operated by" Benedict for his employer, Essex Concrete. Trial Tr. 421-23. While driving on Route 288 in Chesterfield County, the front right tire (the "subject tire") of the truck suffered a tread separation and "completely deflated." See Trial Tr. 421, 423. "The cement truck continued in the right lane for approximately 40 feet before traveling over the white fog line, off the right shoulder, up an embankment, and rolled over." Trial Tr. 423.

As a result of those events, Benedict sustained injuries that "prevent him from ambulating and make him dependent on others for

assistance to perform his activities of daily living." See Trial Tr. 424. Benedict "was treated for his injuries at [the Medical College of Virginia] from November 14, 2014 until December 19, 2014; treated at Vibra Hospital from December 19 until January 26, 2015; and treated at Virginia Commonwealth University Physical Medicine and Rehabilitation from January 26, 2015 until March 20, 2015. Mr. Benedict was discharged and returned home on March 20, 2015." Trial Tr. 424. His medical bills totaled \$2,049,675.23. See Trial Tr. 425; Pl.'s Ex. 27.

The subject tire "was a Hankook Aurora TH08, size 425/65R22.5 medium truck tire that was designed by [HTCL] and manufactured at Hankook's Daejeon South Korea manufacturing plant during the week of November 20, 2005." Trial Tr. 421-22. "After being manufactured, the subject tire was shipped to [HTAC] for distribution in the United States." Trial Tr. 422. The subject tire was sold by Old Dominion Tire to Metro Ready Mix. Trial Tr. 422. "In May 2014, Metro Ready Mix sold its assets, including the cement truck" to Essex. Trial Tr. 422. Before that, "the subject tire was removed from an unknown cement truck on an unknown date and installed on the cement truck involved in the November 14, 2014 accident." Trial Tr. 422. After the accident, the subject tire "remained[ed] mounted on the cement truck [which was kept in a storage yard] for approximately one year." Trial Tr.

424. "Between December 5, 2015 and the present, the subject tire has been maintained in a storage unit in Miami, Florida." Trial Tr. 424.

B. Overview of Liability Evidence

1. Plaintiff's Evidence

To prove his liability theory, Benedict offered the testimony of HTCL officers and employees, documents produced by HTCL, testimony of eyewitnesses to the accident, the subject tire, and expert testimony. He relied most heavily, however, on the expert testimony of David Southwell, and it is that testimony that drives the motions under consideration.

i. David Southwell & His Experience

David Southwell was accepted as an expert "forensic tire engineer." Trial Tr. 114; see also Benedict v. Hankook Tire Co. Ltd., 290 F. Supp. 3d 488, 497-507 (E.D. Va. 2018) (ECF No. 342). Southwell is "an independent tire engineering consultant and failure analyst" and possesses, inter alia, a Master's degree in engineering and a wealth of professional experience in the tire failure analysis field. See Trial Tr. 105-114. Southwell spent "nearly 13 years with Bridgestone Australia" in a variety of roles that required him to understand how and why tires fail, including by analyzing and inspecting failed tires, and he received specific training in that regard. See Trial Tr. 106-07, 111-13. After that, Southwell "went into business for [him]self," "selling and servicing tires of all

types" while also "consult[ing] on tire failures" to diverse groups. See Trial Tr. 107-08. Southwell then joined Bridgestone Corporation in Thailand for three years, training "other Bridgestone engineers and other Bridgestone employees from around the Asia Pacific region in all of the tire technical aspects and failure analysis techniques" he had learned in Australia. Trial Tr. 108-09, 113. Next, he worked for South Pacific Tires, "the manufacturer of Dunlop and Goodyear tires in Australia," in a role that required him to "oversee and coordinate the new product development process for Australia." Trial Tr. 108. Since 2005, Southwell has been an independent consultant for "police, crash investigators, insurance companies, [and] attorneys." Trial Tr. 108. Southwell estimated that, over the course of his career, he has inspected over 15,000 failed truck tires to determine the cause of failure. Trial Tr. 113-14.

ii. The Defect Theories

Upon examination of the subject tire, Southwell "found two manufacturing defects which together . . . caused the [subject] tire to fail in service suddenly." Trial Tr. 115, 133. "The first of those was inadequate adhesion between the components in the tire." Trial Tr. 133. The second was that the subject tire's "inner liner was too thin," which "allowed oxygen to permeate into the body of the tire up into the belt and body ply package and caused oxidation

or deterioration of the rubber." Trial Tr. 133-34. He determined that the separation had occurred "between the body ply and the first belt." Trial Tr. 152. And, he testified that the subject tire failed well before the end of its expected useful service life. See Trial Tr. 132.

Southwell's first defect opinion was based on his finding of "multiple areas in the tire of what's called 'liner imprint.'" Trial Tr. 134. He asserted that newly mixed tire rubber is soft and sticky, and it is rolled up with "an interleaving liner . . . so that the rubber doesn't actually touch itself." Trial Tr. 137-38. When that liner is removed, "the imprint of the pattern on the plastic liner is embedded in the soft rubber." Trial Tr. 139. According to Southwell's experience and opinion, when the tire is assembled, "[p]atterns in the soft, tacky rubber should completely disappear." See Trial Tr. 140. That is because adjoining rubber components should "become one piece of rubber" through a chemical reaction process called interdiffusion. Trial Tr. 140-41. Thus, according to Southwell, when you see liner patterns, "you know that you're looking at one of the original interfaces [between internal tire components], an interface that should have interdiffused with its adjoining interface to form a complete bond." Trial Tr. 144-45. Liner pattern marks are "very clear evidence that in those areas, the rubber components had failed to bond to the extent that they are required

to bond to prevent the tire from falling apart in service." Trial Tr. 134.

Incomplete interdiffusion results from a phenomenon called "scorch," which occurs in the manufacturing plant. Trial Tr. 145. Southwell explained that, to vulcanize the rubber and make it "harder and elastic," sulfur is added and heat and pressure are applied. Trial Tr. 146-47. Interdiffusion involves molecular "fingers" at the surface of rubber components migrating across the surfaces of adjacent components and intermixing. Trial Tr. 140, 146-47. When vulcanization occurs, the sulphur joins these fingers and locks them in place. See Trial Tr. 147. Once sulfur has been added to the rubber, however, which occurs early in production (before a tire is built), there is enough heat in the air to start the vulcanization process and lock a rubber component's molecular fingers together. See Trial Tr. 147-48. Hence, "if you leave the components around in the factory for too long before you bring them together, then what will happen is too many of these fingers will have become joined, and they can no longer interdiffuse across the interface with the adjoining component." Trial Tr. 147-48.

Southwell found "11 separate areas in [the subject] tire of liner pattern mark." Trial Tr. 139, 157-58. That showed to Southwell that "the two surfaces have not interdiffused as they are designed to do" and that "there are significant areas where there is suboptimal

or less adhesion than should have been achieved." Trial Tr. 144. Southwell clarified that the existence of liner pattern marks does not absolutely mean that a tire will fail under all operating conditions (e.g., infrequent use, cold conditions, low speed operations). Trial Tr. 157. However, if a tire with inadequate adhesion is "placed into an operation for which it was designed, it's vulnerability or its propensity to fail is much, much increased." Trial Tr. 157. Southwell also testified that the greater the area of inadequate adhesion, the more likely the tire is to fail. Trial Tr. 157. He viewed the liner pattern marks in the subject tire as "extensive." Trial Tr. 158.¹

Southwell's second defect opinion was that the subject tire's inner liner, "the innermost layer of rubber in the tire," was too thin. Trial Tr. 161-62. That "allow[ed] oxygen molecules to permeate through the rubber and attack [i.e., oxidize] the[] areas of the tire above the inner liner." Trial Tr. 162.

Southwell maintained that: "when certain types of rubber . . . [are] exposed to excessive oxygen, particularly at high temperatures, [the rubber's] physical properties change. It goes

¹ Southwell also found areas of "polishing" in the subject tire, where "the surface of the rubber is quite smooth." Trial Tr. 182-83. The polishing showed that, "at some point during the life of the tire there has been a small area of separated components, probably because of the incomplete interdiffusion," and the components had rubbed together slightly. Trial Tr. 183.

from being flexible and elastic, and it progresses to something much more brittle and hard." Trial Tr. 163. He stated that such "oxidized rubber is not able to sustain [the constant flexing of driving] in the way that they are intended." Trial Tr. 163-64.

Southwell testified that the air that causes a problem for a tire is the internal, pressurized air, not the external air. See Trial Tr. 164. And, he explained that "the inner liner's sole function is to retain the inflation pressure inside the tire," "[s]o the inner liner is manufactured using a highly impermeable rubber . . . called halobutyl." See Trial Tr. 163, 165. Southwell clarified that "there's two characteristics of an inner liner that will improve its performance," the rubber type (i.e., halobutyl) and its thickness. Trial Tr. 166. As to thickness, Southwell testified that an inner liner's "impermeability will be governed by the thinnest point" and that "at no point around this inner liner should the gauge be less than 2 millimeters." Trial Tr. 168.

Having measured the inner liner of the subject tire in 18 separate locations, Southwell concluded that the inner liner was too thin. Trial Tr. 167. Specifically, he determined that the average thickness was 1.8 millimeters thick (with a high of 2.2 and a low of 1.6) and that "[o]f the 18 measurements, only two of them were 2 millimeters or greater." Trial Tr. 167-68. He explained that the inner liner's thickness would have been the same since the date of

manufacture and that variation in thickness is "a normal phenomenon in the manufacturing." Trial Tr. 168-69, 171, 174-75. He concluded that "[t]he reduced thickness allowed oxygen to permeate into the body ply and the belts at a much higher rate than was designed to be the case," such that "[t]he body ply lost its ability to withstand force and contributed to the ultimate failure of the tire." Trial Tr. 181.²

Southwell also explained that, upon inspection, he discovered physical evidence of oxidation within the subject tire. Trial Tr. 181-82. Oxidation can be detected by a tactile inspection and, to some extent, by appearance. Trial Tr. 181-82. Southwell found oxidation "in large areas of the body ply" on the basis of "the appearance and the feel of the body ply and first belt skim coat." Trial Tr. 182.³

² Southwell also discussed Defendants' inner liner specifications, although that was not the basis for his opinion. Trial Tr. 169; see also Trial Tr. 169-74, 178-79. He described, for example, the target and minimum tolerances and explained that: "[t]he liner component is actually manufactured in three pieces, but they are all of the same polymer And in the cured tire, those components are one piece." See Trial Tr. 170-74. Southwell additionally relied on the specifications, among other things, to show that the inner liner and other components are separate and that an inner liner is properly measured apart from other parts of a tire (i.e., should not be measured up to the steel cord). Trial Tr. 178-80.

³ On redirect examination, Southwell clarified that the time that the subject tire was stored outside after the accident did not affect his oxidation findings. Trial Tr. 293-94. That is because oxidation: (1) "occurs much more rapidly . . . at elevated temperatures," i.e.,

In sum, Southwell concluded that both defects contributed to cause the accident and created unreasonably dangerous conditions that existed when the subject tire left Defendants' hands. Trial Tr. 160, 185.⁴

iii. Alternative Causes

Southwell also ruled out alternative potential causes of the accident. First, he concluded that the chronological age of the tire was not a factor because: "[t]ruck tires do not expire. Their life is determined by the depth of tread." See Trial Tr. 198-99. The subject tire was: "approximately 53 percent worn. So it's around about halfway through its original life, bearing in mind that a truck tire is designed not only for its original life, but also for subsequent retreads." Trial Tr. 132.

Second, Southwell ruled out an impact as a cause of the tire failure. Had impact been the cause of the failure of the subject tire, Southwell would "expect to find an impact site which is readily visible, and . . . would expect to see a fracture to the shoulder in the sidewall." Trial Tr. 199-200. And, he stated that, if an impact

"when the tire is operating [at ~200 degrees Fahrenheit] rather than when it's sitting still cold"; and (2) "oxygen does not permeate through the liner when the tire is uninflated." Trial Tr. 293-95.

⁴ Southwell also determined that the subject tire "was being used in an intended fashion and in a foreseeable fashion" on the day of the accident based on his "review of the testimony and . . . of the records concerning the truck and the loading and the way this tire was used on the day of the accident." Trial Tr. 124-25; see also Trial Tr. 205-06.

had caused the break to the second belt that appeared in the subject tire (as Defendants' expert Joseph Grant suggested), "[y]ou would expect to see something on the tread and in the belts above the second belt in the third and fourth belt." Trial Tr. 200, 202. But, he concluded that "[t]here was no evidence on the tire of it having suffered a significant impact that in any way contributed to its failure." Trial Tr. 199. Furthermore, Southwell explained that the damage that occurred to the second belt was accident-related, not impact-related, because "[t]he only component that's been damaged at that location is the second belt, which was in the middle of the tire but became exposed in the flapping around" of the accident; the other components were intact. Trial Tr. 202-05.

Finally, Southwell confirmed that he did not "find any other bases or reasons for this tire to come apart the way it did other than the two defects" that he found and to which he testified extensively. See Trial Tr. 205.

2. Defendants' Liability Evidence

Defendants' liability evidence came primarily from two witnesses, Yun Chang Chun and Joseph Grant.

i. Yun Chang Chun

Chun is an employee of HTCL, having worked there for approximately 20 years, and he has a mechanical engineering degree. Trial Tr. 452-53. He worked at the plant where the subject tire was

manufactured at the time it was made. Trial Tr. 454-55. His team's job involved "mak[ing] sure that th[e] specifications were being applied properly," and he had exposure to Defendants' quality control processes. Trial Tr. 455-56.

Chun testified at length as to Defendants' manufacturing and quality assurance procedures. For example, he explained that Defendants "make sure that [their rubber is] stored properly to make sure that they don't get contaminated," they "use liner paper to wrap the rubber sheets in," and they "make sure that [the rubber is] used in a timely manner based on the first-in-first-out principle." Trial Tr. 458. In addition, Defendants "control [their] stock period," have a "use-by period . . . based on established standards," employ a radiofrequency identification system to monitor compliance with the use-by periods, and "have every semifinished product tagged so that the operator" "would manually double-check the product at each stage." Trial Tr. 460-62. Furthermore, every tire that Defendants produce, after completion, is subjected to an "exterior appearance inspection," an x-ray by trained technicians, and uniformity checks (which test for balanced weight distribution, proper shape, and counteraction with the ground). Trial Tr. 459-60.

Chun also described Defendants' performance testing. He explained that a test is performed that runs a tire simulating a load until it fails. Trial Tr. 471-72. He indicated that Defendants' tires

far surpassed the federal durability standard (and Defendants' higher internal standard) for the week of testing closest to the week when the subject tire was manufactured. Trial Tr. 478-79.

Chun additionally discussed Defendants' inner liner specifications. He testified that the subject tire's inner liner had three layers. Trial Tr. 522. The first was halobutyl "to prevent or minimize the air leakage from inside of the tire to the outside of the tire." Trial Tr. 522. The second layers were natural rubber and were designed to protect the halobutyl layer from stress (as it is "very susceptible to stress") and to serve as a buffer between that layer and the tire carcass (because the halobutyl layer "should not come in contact with the carcass itself"). Trial Tr. 522-23. Chun explained that Defendants measure the inner liner based on "all three inner liners together" because of the distinct functions of the layers, and they "use the end point of the cord as a starting point for the measurement of the thickness of the inner liner." See Trial Tr. 524. A sample tire of those manufactured when the subject tire was made was tested for inner liner thickness, and the results were 4.1 millimeters on one side of the tire and 4.6 millimeters on the other. Trial Tr. 538.⁵

⁵ Chun also testified to Defendants' inner liner gauge specifications. Trial Tr. 528, 538.

ii. Joseph Grant

Joseph Grant was Defendants' expert in "[t]ire manufacture, quality assurance and testing of tires, and tire failure analysis." Trial Tr. 592. He has a Bachelor's of Science in Mechanical Engineering, "worked for Continental General Tire for 34 1/2 years," and also did "full-time independent [tire] consulting work all the way up even to the present." Trial Tr. 574-75, 589-91. He has "been involved with the manufacture, the design, the testing, quality assurance, the care, and service of tires for 47 years." Trial Tr. 575. His "whole career [he's] been doing forensic analysis" on tires. Trial Tr. 586-87. Grant is also a member of a variety of relevant industry societies. Trial Tr. 587-89.

Grant concluded, based on what he thought was "overwhelming physical evidence," that the subject tire "sustain[ed] a very localized failure in one location of the tire as a result of a road hazard impact." Trial Tr. 601. He explained that there was "a break in the No. 2 steel belt" and "a very obvious separation that developed where that break is" ("between steel belts two and three"). Trial Tr. 601.⁶

⁶ Defendants also offered Benedict's deposition testimony, in which he stated that he once performed a special inspection on an unspecified tire at an unspecified time because of an impact on Route 288. Trial Tr. 444-45.

Grant stated that "the No. 3 and 4 belt above th[e impact] region are actually gone" and "there's actually a piece of tread missing" there as well. Trial Tr. 603. He further testified that "there's rubber tear lines that are emanating directly away from where that break is that are characteristic of a separation developing inside the tire from multiple revolutions because the rubber has to take up more of the stresses and strains because it's been compromised from the broken No. 2 steel belt." Trial Tr. 604. He noted that "you don't see anywhere else around the tire the characteristics of these types of tears." Trial Tr. 605. Based on "the size of the separation, the freshness of the tear lines, and the lack of accelerated wear on the outside," Grant determined that "the physical evidence indicates that [something] happened in roughly 200 miles of [the accident] in a localized area." Trial Tr. 610.⁷

Additionally, Grant expressed the view that Defendants are doing "exactly what I would expect to see in a well-manufactured, well-run plant" with respect to quality assurance, in perspective of his "review of Hankook manufacturing documents, the testimony of Mr. Chun, and [his] experience." See Trial Tr. 662.

⁷ Grant also testified that, if a separation had been ongoing "for 5,000 miles or 10,000 miles," one would expect "serious polishing" and accelerated wear, which he did not find upon examination of the subject tire. See Trial Tr. 618.

Grant also questioned Southwell's opinions. Thus, according to Grant, he discovered no liner pattern marks in the failure area; noted that there is "good, multilevel random tearing of the structure" (i.e., the tire is "not coming apart at any manufactured interface"); found that the subject tire "did not even catch an interface where there was a liner pattern"; observed that liner patterns can show up without affecting adhesion; and "concluded that there is absolutely nothing that would indicate there's any adhesion issue." See Trial Tr. 616-17, 620, 665-66, 670-73, 675.⁸ Grant also explained that, if rubber "gets scorched, it's going to be across the entire surface." Trial Tr. 669-70. And, Grant opined that the inner liner was not too thin because if one adds up all the layers of the subject tire's inner liner (not just the halobutyl layer), it is above 2.5 millimeters, which is "best in class" and "what inner liners . . . in all steel truck tires . . . with high technology are actually designed to have." Trial Tr. 684-85.⁹ Furthermore, he concluded that no oxidation occurred because "the rubber is still supple" (even three years after the accident, during which "these components have been subjected to more air . . . than they were while they were stuck

⁸ Grant went through the photographs of liner imprint identified by Southwell and asserted that they do not suggest an adhesion issue and, indeed, suggest good adhesion. Trial Tr. 667-69.

⁹ Grant testified that, as to the halobutyl layer, Southwell and he obtained consistent measurements. Trial Tr. 677. His highest measurement was 1.9 millimeters. Trial Tr. 677.

together") and the failure was in one location. Trial Tr. 676. Additionally, he testified that the manner in which the tire disintegrated shows that "this tire did not come apart between the body ply and the first belt." Trial Tr. 613-14. Moreover, he noted that a break could arise in only belt two based on how the belts are oriented. Trial Tr. 615. Finally, he found that the break in belt two was not merely accident damage. See Trial Tr. 615-16.

C. Overview of Plaintiff's Damages Evidence

Benedict's evidence ¹⁰ established that, immediately upon becoming conscious after the accident, his neck hurt, he was frightened, and "[b]lood was gushing everywhere out of [his] leg." Trial Tr. 367, 369. He could not move because he was pinned by the steering wheel. Trial Tr. 368. The cab was full of smoke and glass, and it smelled of burnt oil. Trial Tr. 368. Benedict was conscious the whole time he was trapped in the truck. Trial Tr. 369.

By the time Benedict was delivered to the trauma surgeon, Benedict's heart had stopped. Trial Tr. 78. The trauma surgeon opened Benedict's chest, began pumping his heart by hand, and gave Benedict drugs to restart his heart. Trial Tr. 78. Eventually, the trauma surgeon also discovered massive internal injuries; Benedict's ribs "had pierced a couple areas of his lungs, they'd also pierced into

¹⁰ The only evidence of damages in the case was put on by Benedict.

his abdomen and poked a hole in his spleen." Trial Tr. 81-82.¹¹ Benedict had "flail chest" on the left side, which is "a chest that has fractures in two places in two or more ribs." Trial Tr. 91.

After the trauma surgeon had stabilized Benedict, the surgeon found "a devastating injury to his cervical spine." Trial Tr. 86. The injury was to the C-5/C-6 level of the spine, which "controls . . . the lower arms and the hands" and anything below that level. See Trial Tr. 87-88.¹² That injury caused Benedict to be permanently paralyzed. See Trial Tr. 86, 318-19, 424.

Furthermore, because of the internal injuries, "[f]or quite a while [Benedict] was unable to breathe on his own." Trial Tr. 94. And, for a week, Benedict was in a medically induced coma. Trial Tr. 96. He also was subjected to several surgeries. Trial Tr. 96-97. Benedict stayed in the ICU for about 30 days, from November 14, 2014 until December 19, 2014. See Trial Tr. 98, 424. When he came to, Benedict could not move, communicate, swallow, or eat or drink, and the tube in his mouth felt "not good." Trial Tr. 370-71.

After he left the ICU, Benedict was moved to "a care facility that would be able to handle ventilated patients" (Vibra) because he was still on a ventilator. Trial Tr. 98. He was there for about

¹¹ The surgeon had to remove Benedict's spleen (which helps to fight infections), Trial Tr. 82, and his liver was injured, Trial Tr. 91.

¹² Additionally, there were three fractures in the lower portions of Benedict's spine. Trial Tr. 89.

a month, from December 19 until January 26, 2015. Trial Tr. 37, 424. In January 2015, after having been weaned off the ventilator, Benedict "was admitted to [the] inpatient rehabilitation medicine service." Trial Tr. 304. At that time, he was "medically stable enough to tolerate at least three hours of intensive rehabilitation, but he still had a lot of ongoing medical issues." Trial Tr. 306. He had no finger movement and "very little functional movement" of his left arm (which was broken). Trial Tr. 306-07. He also "didn't have control over either bladder or bowel." Trial Tr. 308.

Benedict underwent extensive rehabilitation therapy from January 26, 2015 until March 20, 2015. See Trial Tr. 37-38, 424. "In a typical day . . . he would have at least three hours of therapy time scheduled usually with physical therapy, occupational therapy and then maybe speech therapy." Trial Tr. 312.¹³ The goal was to maximize mobility, permit self-care, and train on bladder and bowel management. Trial Tr. 312-13.

After leaving rehabilitation, Benedict still "wasn't able to be independent in many of his self-care activities or his mobility activities or his bladder and bowel activities." Trial Tr. 315. He needed help to turn in bed, to get dressed, to get out of bed, to eat, and to dispose of waste. Trial Tr. 315-16. To this day, to go

¹³ Speech therapy was necessary because his vocal cords were damaged from intubation. Trial Tr. 39, 307. They continue to be damaged. Trial Tr. 307.

to the bathroom, Benedict must be catheterized (urination) or have a 2-2.5 hour invasive bowel program performed on him. Trial Tr. 40-42, 63, 316. He must be catheterized four to six times per day, and the bowel program must be performed every other day. Trial Tr. 41-42. For about two years after Benedict came home, nurses were there around the clock, and he and his family had no privacy. See Trial Tr. 44-45, 47, 377-78. Those nurses helped Benedict dispose of waste, dressed him, stretched him, and bathed him. Trial Tr. 378. During that time, Benedict could not shower (he only had bed baths) and slept in the living room, based on the layout of his home. Trial Tr. 41-42, 46-47, 377-78. Ultimately, the family decided to borrow money to build a handicap accessible home. Trial Tr. 46-47. It took 6-7 months to a year before Benedict was able to bring food to his mouth, and then only with specialized utensils affixed to his hand. Trial Tr. 54, 378-79.

The evidence proved, without dispute, that Benedict will be permanently disabled and will likely not improve in neurological function. Trial Tr. 98, 318-19.¹⁴ He "has a very weak ability to pinch

¹⁴ The trauma surgeon stated, as to the degree of disability going forward, that he was surprised that Benedict is "even moving his upper extremities, so I think he'll continue to surprise us." Trial Tr. 98. The rehabilitation physician explained that medical science cannot do a lot to improve Benedict's prognosis, and "[t]here aren't any new medications, surgeries or therapies that have been shown to improve neurological function after a spinal cord injury." Trial Tr. 319.

or grasp" that is "very nonfunctional." Trial Tr. 313-14.¹⁵ Benedict has not been able to do anything to care for himself since the accident, and his wife has been taking care of him 12 hours a day. Trial Tr. 343, 385. Nurses assist him with him with his daily needs. Trial Tr. 47-48. Benedict's wife often helps him with waste disposal, particularly at night. See Trial Tr. 40-42, 47, 49-50. Because Benedict must be catheterized and turned every few hours, neither Benedict nor his wife can sleep through the night. Trial Tr. 49-50. Benedict gets spasms every day that feel "like someone is punching him in the stomach, and he can't breathe." Trial Tr. 52, 382. Throughout the day, Benedict must be placed in a stand-up wheelchair "for pressure releases to eliminate bed sores." Trial Tr. 64. He is not able to go through the showering process every day because "[i]t's a lot of work, and it's a lot on him" (it requires a special lift and a shower chair). Trial Tr. 51. Benedict cannot dress himself and the dressing process is difficult because Benedict is paralyzed from the chest down and cannot bend his arms normally. Trial Tr. 53, 313. Benedict has not been left alone for a minute since being released from the hospital. Trial Tr. 62. He tries not to take pain medication, but he has nevertheless has had to do so because "[h]e has pain in

¹⁵ He has now reached the point that he is able to grasp (using his thumb and index fingers) "pork rinds, cheese puffs," and that was only possible after receiving special surgery. See Trial Tr. 381. His next goal is to be able to grasp a potato chip (a much thinner object). See Trial Tr. 381.

his head and neck area, and even some pain below the level of injury." Trial Tr. 315.

As a paralyzed individual, Benedict is at risk for several medical problems. For example, he is at constant risk of autonomic dysreflexia, or "a hyperstimulation of the sympathetic nervous system," which can be brought on by "[a]ny noxious stimuli" below the level of spine injury, including "a urinary tract infection, pneumonia, a fracture, a pressure ulcer tight clothing, bowel constipation" or unaddressed waste disposal needs. Trial Tr. 309-10. That can cause "[v]ery high blood pressures to the point where you can have cerebral hemorrhage or stroke." Trial Tr. 309-10. When a bout of autonomic dysreflexia occurs, Benedict gets very uncomfortable, starts sweating badly, gets chills, and his blood pressure skyrockets. Trial Tr. 382. He is also at greater risk of bone fractures, pressure ulcers, bladder infections, lung fluid and infections, abnormal bone growth, contractures (limitations in joint flexibility), etc. Trial Tr. 307, 310-11, 317. Some of these comorbidities can kill a paralyzed person, and they reduce life expectancy. Trial Tr. 317-18, 322. In fact, Benedict has experienced autonomic dysreflexia, UTIs, more colds and allergies, and has had to go to the hospital for blood clots. Trial Tr. 382-83.¹⁶

¹⁶ The blood clots arose after a surgery to improve Benedict's arm mobility. Trial Tr. 383.

Before the accident, Benedict was "a young, very strong man," was in excellent health, was an "outdoors person," had a passion for driving trucks (since he "was a little kid"), engaged in activities with his family and friends (e.g., sports, going to the beach, parks, amusement parks, decorating the house, going to the racetrack, grilling, bowling), would "tak[e] care of all the problems," and would work around the home (e.g., cooking, laundry, yardwork). Trial Tr. 30, 330, 332, 359-60, 385-86. Now, Benedict cannot ambulate; he cannot "do anything he used to do with [his] children"; his wife has become "his caretaker and his nurse"; he has no intimate relationship with her; he "can't ever be alone"; and the fact that "everything is on [his wife's] shoulders now . . . really hurts him." Trial Tr. 67-68, 385-86, 417, 425. And, Benedict and his wife lost friends because "[t]hey don't see him the same way." Trial Tr. 65. He gets embarrassed because people "look at him differently" and because of his care needs (e.g., his bathroom needs). Trial Tr. 66. Benedict fears that he will not grow old with his wife and will not live long enough to watch his children grow up. Trial Tr. 68. He misses being a husband and father, and he feels that his family dynamic has dramatically changed "from [him] taking care of all the problems to becoming the problem." Trial Tr. 385-86.

As to economic damages, the parties stipulated that the past medical costs totaled \$2,049,675.23. See Trial Tr. 425; Pl.'s Ex.

27. An expert economist, Dr. Frederick Raffa, testified that Benedict's past lost wages were \$115,545; that his future lost wages, at present value, were \$493,141; and that his life care needs (based on a plan set by a qualified life care plan witness, Dr. Craig Lichtblau), at present value, would cost \$6,109,381. See Trial Tr. 340, 392, 413-14.

The evidence about the nature of Benedict's injuries and the economic damages were not disputed (and wisely so).

THE STANDARDS GOVERNING MOTIONS UNDER FED. R. CIV. P. 50(b) AND 59

The standards applicable to motions for judgment as a matter of law under Fed. R. Civ. P. 50 are well-established:

A court "may grant judgment as a matter of law only if, viewing the evidence in a light most favorable to the non-moving party and drawing every legitimate inference in that party's favor, . . . the only conclusion a reasonable jury could have reached is one in favor of the moving party." If, upon the conclusion of a party's case, "a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue," a court may grant a motion from the opposing party for judgment as a matter of law.

Huskey v. Ethicon, Inc., 848 F.3d 151, 156 (4th Cir. 2017) (citations omitted); see also United States v. Kivanc, 714 F.3d 782, 795 (4th Cir. 2013) ("[In assessing a motion for judgment as a matter of law,] [w]e consider the evidence in the light most favorable to the nonmoving party but may not make credibility determinations or

substitute our judgment for that of the jury.").

The standards for a new trial under Rule 59 are equally familiar:

"In considering a motion for a new trial, a trial judge may weigh the evidence and consider the credibility of witnesses, and if he finds the verdict is against the clear weight of the evidence, is based on false evidence or will result in a miscarriage of justice, he must set aside the verdict, even if supported by substantial evidence, and grant a new trial." "The decision to grant or deny a motion for a new trial is within the sound discretion of the district court and will not be disturbed absent a clear showing of abuse of discretion."

See King v. McMillan, 594 F.3d 301, 314-15 (4th Cir. 2010) (citations omitted).

DISCUSSION

Defendants raise three main arguments. First, they claim that judgment should be directed in their favor as a matter of law because Benedict failed to establish that the subject tire was negligently manufactured. See Defs.' Br. 6-19.¹⁷ Second, Defendants contend that a new trial should be ordered because the verdict was against the clear weight of the evidence. See Defs.' Br. 19-22. Third, Defendants maintain that the jury's award was excessive. See Defs.' Br. 22-28.

¹⁷ As part of this argument, Defendants assert that certain evidence was improperly admitted in Benedict's rebuttal case. See Defs.' Br. 15-16. For the reasons set out below, that issue is addressed separately.

I. Defendants' Arguments that Plaintiff Failed to Establish that the Subject Tire Was Negligently Manufactured

Defendants' argue that, to prove negligent manufacturing, a plaintiff must show not only that a product was "unreasonably dangerous" because it failed to conform to some objective standard, but also that the defect was a result of the manufacturer's failure to exercise due care in the manufacturing process. Defs.' Br. 7-9. They further allege that the Court's jury instructions required such proof. Defs.' Br. 9. They also assert that Benedict's expert testimony was insufficient to establish any objective manufacturing standards or breach thereof. See Defs.' Br. 12. These contentions are unavailing.

A. The Standards Governing Negligent Manufacturing Claims

1. The Summary Judgment Opinion (ECF No. 343)

In resolving Defendants' pre-trial motion for summary judgment, the Court issued a Memorandum Opinion describing, at length, the standards applicable to negligent manufacturing claims in Virginia. See Benedict v. Hankook Tire Co. Ltd., 295 F. Supp. 3d 632, 637-47 (E.D. Va. 2018) (ECF No. 343). The Court incorporates that Opinion in relevant part here, and it presumes familiarity with it. Nevertheless, a few points are worth repeating.

First, the Court previously held that there exists a basic products liability framework in Virginia. Benedict, 295 F. Supp. 3d at 637. As the Court explained, "a products liability plaintiff must

establish three elements: (1) the product must contain a 'defect which rendered it unreasonably dangerous for ordinary or foreseeable use'; (2) the defect must have 'existed when it left the defendant's hands'; and (3) the defect must have 'actually caused the plaintiff's injury.'" Id. (citations omitted). "For a plaintiff to prove that an 'unreasonably dangerous' defect existed, '[h]e or she must establish the violation of industry or government standards, or prove that consumer expectations have risen above such standards.'" Id. (citations omitted). If there are no industry standards, courts may "rely on expert testimony to determine whether a product is unreasonably dangerous," so long as that testimony is "analytically rigorous and not merely 'subjective.'" Id. at 638-39 (citations omitted).

Second, the Court determined that no proof beyond that required by the basic products liability framework is needed to sustain a negligent manufacturing claim. Benedict, 295 F. Supp. 3d at 640, 644-45, 647. Rather, "Virginia law considers a defendant to be negligent and to have violated the standard of care if it produces an unreasonably dangerous product that causes injury." Id. at 640. The Court held that Virginia formally does not recognize the doctrine of strict products liability, but it has done so in effect by "treating the 'negligence' and 'standard of care' inquiries . . . as inextricably 'bound up' with the question of whether the product at

issue is 'unreasonably dangerous.'" See id.; see also id. at 644-45 ("In short, Virginia law adheres to the "bound up" principle. That is, it uses the language of negligence, but it defines the elements of negligence and the standard of care inquiry in defective product cases, including those involving negligent manufacture claims, by reference to the basic products liability framework.").

2. Evans v. NACCO Materials Handling Group, Inc.

Defendants say that they must prevail because of the decision in Evans v. NACCO Materials Handling Group, Inc., 810 S.E.2d 462 (Va. 2018), a products liability case decided by the Supreme Court of Virginia after trial concluded in this case. See Defs.' Br. 8. That contention is erroneous.

In Evans, the Supreme Court of Virginia rejected a design defect claim. See Evans, 810 S.E.2d at 470-72. In so doing, it focused entirely on whether the product at issue was unreasonably dangerous. Id. First, the Supreme Court of Virginia voiced that the plaintiff had offered no evidence on the point. Id. at 470. It went on to explain that, even if the plaintiff had offered such evidence, she had failed to show an element that is unique to design defect claims, i.e., that "an alternative design is safer overall than the design used by the manufacturer." Id. at 471-72.

Even though Evans did not involve a negligent manufacturing claim, the decision contains two passages that merit discussion, as

they relate to the generally applicable products liability principles explained fully in the previous summary judgment Opinion and adopted here. The first passage is the following:

Virginia has not adopted a strict liability regime for products liability. When alleging that a product suffered from a design defect, a plaintiff may proceed under a theory of implied warranty of merchantability or under a theory of negligence. Negligence is the failure to exercise "that degree of care which an ordinarily prudent person would exercise under the same or similar circumstances to avoid injury to another." With respect to designing products, the law imposes on a manufacturer "a duty to exercise ordinary care to design a product that is reasonably safe for the purpose for which it is intended."

Whether a plaintiff proceeds under a theory of warranty or negligence, the plaintiff must prove: (1) that the goods were unreasonably dangerous either for the use to which they would ordinarily be put or for some other reasonably foreseeable purpose, and (2) that the unreasonably dangerous condition existed when the goods left the defendant's hands.

Evans, 810 S.E.2d at 469 (citations omitted).

This passage is not at odds with the fact that Virginia adheres to the so-called "bound up" principle. As set forth in the Court's previous Opinion, Virginia decisions frequently observe that manufacturers are under a duty to exercise ordinary care. See Benedict, 295 F. Supp. 3d at 641-43. And, it is well-established that Virginia does not recognize the doctrine of strict products liability. See id. at 640.

Indeed, the above passage offers affirmative support for the explanation of Virginia law as set out in Benedict, 295 F. Supp. 3d at 640-45. Notwithstanding Evans' discussion of the duty of care applicable to manufacturers in designing products, the Supreme Court of Virginia concluded by holding that a products liability plaintiff must satisfy the basic products liability framework. Evans, 810 S.E.2d at 469. That precisely aligns with this Court's previous review of Virginia decisional law, which demonstrated that courts often utilize the language of negligence, and describe manufacturers as subject to a duty to exercise ordinary care, but that the negligence analysis is ultimately governed by the basic products liability inquiry. See Benedict, 295 F. Supp. 3d at 641-45.

In the second passage, the Supreme Court of Virginia stated:

Whether a manufacturer was negligent involves an objective inquiry. "To sustain a claim for negligent design, a plaintiff must show that the manufacturer failed to meet objective safety standards prevailing at the time the product was made." Governmental safety standards and industry practices are highly relevant on the question of whether the manufacturer's design was negligent because they permit an inference that the manufacturer exercised (or failed to exercise) ordinary prudence. Governmental regulations and industry standards and practices are not dispositive, however. It may be the case that such regulations simply do not exist, for example, or if they do, they may have become antiquated. Industry practices likewise are not conclusive in assessing whether a manufacturer was negligent.

In addition to governmental regulations, and industry norms and practices, reasonable consumer expectations can provide objective evidence that the product is defective. This may be shown by direct evidence of what reasonable consumers considered defective as well as published literature or industry practices recognizing a safety standard that reasonable consumers expected. Published literature may include, among other sources, marketing, advertising, presentation, promotional materials, product manuals, and instruction booklets.

Evans, 810 S.E.2d at 469-70 (citations omitted).

This passage also confirms the Court's understanding of Virginia law as set forth in the summary judgment Opinion. The Supreme Court made clear that the relevant "standards" in assessing a manufacturer's negligence are those relating to the basic products liability framework (e.g., government standards, industry standards, and consumer expectations). See Evans, 810 S.E.2d at 469-70. Indeed, Evans expressly observed that these standards "permit an inference that the manufacturer exercised (or failed to exercise) ordinary prudence." Id. at 469 (emphasis added). And, the court used language relating to negligence and product defect interchangeably. Compare id. ("Governmental safety standards and industry practices are highly relevant on the question of whether the manufacturer's design was negligent because they permit an inference that the manufacturer exercised (or failed to exercise) ordinary prudence." (emphasis added)), with id. at 470 ("In addition

to governmental regulations, and industry norms and practices, reasonable consumer expectations can provide objective evidence that the product is defective." (emphasis added)). Nothing in Evans indicated that more proof, beyond that demanded by the basic products liability framework (e.g., proof that a defendant actually failed to use reasonable care in the manufacturing process), is required.

Moreover, Evans does not conflict at all with the view that courts may "rely on expert testimony to determine whether a product is unreasonably dangerous when there is no 'established norm in the industry,'" i.e., that there exists what this Court has termed the "expert safety" step. See Benedict, 295 F. Supp. 3d at 638 (citations omitted). Importantly, the Supreme Court of Virginia nowhere suggested in Evans that Virginia products liability law is not still informed by Ford Motor Co. v. Bartholomew, 297 S.E.2d 675 (Va. 1982), in which:

The [Supreme Court of Virginia] found that the automobile industry had not yet promulgated safety standards relating to this particular problem. Consequently, the court admitted the opinion of plaintiff's expert that the car's design was unreasonably dangerous, based on information published by the [NHTSA], consultation with other experts, and experiments with transmission systems

Benedict, 295 F. Supp. 3d at 638 (quoting Alevromagiros v. Hechinger Co., 993 F.2d 417, 421 (4th Cir. 1993)); see also Bartholomew, 297 S.E.2d at 679 ("Absent an established norm in the industry, it was

a matter of opinion of trained experts what design was safe for its intended use."). And, the Evans decision expressly noted that government and industry standards are not dispositive as to a products liability claim because, inter alia, "[i]t may be the case that such regulations simply do not exist." See Evans, 810 S.E.2d at 469-70.¹⁸

In sum, Evans confirms the Court's view of Virginia products liability law as set out in the previous summary judgment Opinion.¹⁹

¹⁸ The Evans court did not address the "expert safety" step but for good reasons. The plaintiff's expert in Evans "agreed that the design of the brake satisfied the applicable ANSI standard." Evans, 810 S.E.2d at 470. And, the product design at issue complied with industry custom. Id. Furthermore, although the plaintiff argued that the ANSI standard was silent on the particular design aspect at issue and that the industry custom was not universal, those arguments were rejected because the plaintiff had failed to show that the product at issue was unreasonably dangerous for other reasons (relating specifically to design defect claims). Id. at 471.

¹⁹ There are ways in which the Evans opinion might affect the Court's previous Opinion, but these impacts are insubstantial.

First, Evans suggests that industry practices may be considered evidence of negligence, in addition to formally promulgated industry standards. See Evans, 810 S.E.2d at 469-70. However, nothing in Evans clarifies whether a mere industry practice can constitute "an established norm in the industry" sufficient to foreclose reliance on the "expert safety" step or under what circumstances it would do so. See id.; Bartholomew, 297 S.E.2d at 679. Absent further guidance, the Court is of the view that only formally promulgated industry standards and, perhaps, those industry practices related to the defect at issue that are proven to be so widespread as to compare to formal industry standards constitute "an established norm in the industry." That does not affect the analysis here, however, as no argument has been made that there is evidence sufficient to foreclose

B. Defendants' Argument that Virginia Law Requires Proof of the Failure to Exercise Ordinary Care

As set out above, Defendants' first argument is that, to prove negligent manufacturing, Benedict must show that Defendants failed to exercise due care in the manufacturing process. Defs.' Br. 7-9. Defendants rely on Evans to support their position. Defs.' Br. 8.

However, the foregoing analysis of Evans shows that Defendants' argument is meritless. First, Evans involved only whether the product at issue was designed in an unreasonably dangerous manner. It nowhere held that a products liability plaintiff must offer proof beyond that sufficient to sustain the elements of the basic products liability test. Second, Evans actually confirms the Court's view that Virginia law does not require such proof.

Defendants' remaining arguments as to this issue largely mirror those set forth in their summary judgment brief. Compare Defs.' Br. 6-9, with Defs.' Mem. in Supp. of Mot. for Summ. J. 13-15, and Defs.' Reply in Supp. of Mot. for Summ. J. 2-5. These arguments are

reliance on the "expert safety" step, and no such evidence has been presented.

Second, Evans might be read as suggesting that even a violation of a government or industry standard, etc., is not dispositive as to the question of negligence (for example, if the standard is "antiquated"). See Evans, 810 S.E.2d at 469-70. That is a questionable reading of Evans, but the point is irrelevant here because there is no evidence of such a violation.

foreclosed by the Court's previous decision and the reasoning therein. See Benedict, 295 F. Supp. 3d at 637-47.²⁰

C. Defendants' Argument that the Jury Instructions Required Proof of the Failure to Exercise Ordinary Care

Defendants also argue that additional proof of Defendants' failure to exercise due care was required by jury instructions 25 and 26. Defs.' Br. 9.

Those instructions included the following language:

25. NEGLIGENCE IS THE FAILURE TO USE ORDINARY CARE. ORDINARY CARE IS THE CARE A REASONABLE PERSON WOULD HAVE USED UNDER THE CIRCUMSTANCES OF THIS CASE.

26. A MANUFACTURER HAS A DUTY TO USE ORDINARY CARE TO MANUFACTURE A PRODUCT THAT WILL BE REASONABLY SAFE FOR ITS INTENDED PURPOSE AND FOR ANY OTHER REASONABLY FORESEEABLE PURPOSE.

IF A MANUFACTURER FAILS TO PERFORM THIS DUTY, THEN IT IS NEGLIGENT.

(ECF No. 430).

Defendants' argument, however, reads these instructions in a vacuum and takes them out of context. As an initial matter, they were followed directly by jury instruction 27, which stated:

²⁰ Defendants attempt to push against the Court's previous analysis of Chestnut v. Ford Motor Co., 445 F.2d 967 (4th Cir. 1971), by highlighting the fact that "other courts applying Virginia law have also applied the 'standard of safety' and addressed the manufacturer's duty to exercise ordinary care in product liability cases based on negligence." See Defs.' Br. 7 n.3. The Court is fully aware of those decisions and discussed them at length in its previous Opinion. See Benedict, 295 F. Supp. 3d at 641-43.

27. MORE PARTICULARLY, THE DEFENDANTS WERE NEGLIGENT IF THE PLAINTIFF PROVES BY A PREPONDERANCE OF THE EVIDENCE THAT THE SUBJECT TIRE WAS UNREASONABLY DANGEROUS EITHER FOR THE USE TO WHICH IT WOULD ORDINARILY BE PUT OR FOR SOME OTHER REASONABLY FORESEEABLE PURPOSE, AND THAT THE UNREASONABLY DANGEROUS CONDITION EXISTED WHEN THE SUBJECT TIRE LEFT THE DEFENDANTS' HANDS.

THE SUBJECT TIRE WAS UNREASONABLY DANGEROUS IF IT WAS DEFECTIVE IN ASSEMBLY OR MANUFACTURE.

(ECF No. 430). Hence, considering the instructions as a whole, it was made abundantly clear to the jury that Defendants should be found negligent if Benedict proved that "the subject tire was unreasonably dangerous either for the use to which it would ordinarily be put or for some other reasonably foreseeable purpose, and that the unreasonably dangerous condition existed when the subject tire left the defendants' hands." (ECF No. 430). Additional evidence of negligence was unnecessary.²¹

²¹ In their reply brief, Defendants assert that jury instruction 27 supports their position because it states that "the subject tire was unreasonably dangerous if it was defective in assembly or manufacture." Defs.' Reply Br. 5-6. That is wrong. All that language indicates is the type of claim and the fact that a manufacturing defect (rather than, say, a design defect) is what would render the subject tire unreasonably dangerous in this case. Cf. Va. Model Jury Instructions-Civil, Instruction No. 34.076 ("A product is unreasonably dangerous if it is defective in assembly or manufacture, unreasonably dangerous in design, or unaccompanied by adequate warnings concerning its hazardous properties."). That language says nothing about requiring additional proof of the failure to use due care.

Further, the foregoing jury instructions were designed to reflect the Court's previous decision respecting Virginia's "bound up" principle. Instructions 26 and 27 were based upon Virginia Model Jury Instructions 34.140 and 34.075, respectively, which the Court analyzed at length. See Benedict, 295 F. Supp. 3d at 643-45. The Court held that these instructions "treat the basic products liability inquiry as defining 'negligence' and consider satisfaction of this test as equivalent to a breach of the standard of care." Id. at 644.

In sum, Defendants' arguments as to the instructions are unpersuasive.

D. Defendants' Argument that Plaintiff's Expert Failed to Establish Any Objective Manufacturing Standards or a Breach Thereof

Defendants further claim that Southwell's opinions were insufficient to support the negligent manufacturing claim as a matter of law. See Defs.' Br. 11-12.

1. The Summary Judgment Opinion

As noted above, the Court held, in the summary judgment Opinion, that a products liability plaintiff must prove that: "(1) the product . . . contain[s] a 'defect which rendered it unreasonably dangerous for ordinary or foreseeable use'; (2) the defect . . . 'existed when it left the defendant's hands'; and (3) the defect . . . 'actually caused the plaintiff's injury.'" See Benedict, 295 F. Supp. 3d at 637 (citations omitted). Where, as here,

"there is no 'established norm in the industry,'" a plaintiff may "rely on expert testimony to determine whether a product is unreasonably dangerous" (the "expert safety" step). See id. at 638 (citations omitted).

The Court further determined that, when parties are relying on the "expert safety" step, "expert testimony is sufficient . . . if it explains, with analytical rigor, why the product is unreasonably dangerous." See Benedict, 295 F. Supp. 3d at 649. More specifically, the Court explained:

Not just any expert testimony, however, will satisfy the expert safety step. Rather, expert opinions must be analytically rigorous and not merely "subjective." See [Freeman v. Case Corp., 118 F.3d 1011, 1016-17 (4th Cir. 1997)]; Alevromagiros, 993 F.2d at 421. An appropriate expert opinion will be one that, for example, is based on "a review of the literature, experiments and consultations with other experts." See [Blevins v. New Holland N. Am., Inc., 128 F.Supp.2d 952, 957 (W.D. Va. 2001)]; see also Freeman, 118 F.3d at 1016-17 (holding that an expert's opinion was adequate where he "clearly applied his expertise and knowledge of the published sources and drew from his detailed inspection of the product itself in evaluating the configuration at issue"); Alevromagiros, 993 F.2d at 421 ("[T]here is neither an absence of industry standards, nor an expert opinion based on extensive testing and published reports."); [Lamonds v. Gen. Motors Corp., 96-0067-C, 1998 WL 372633, at *2 (W.D. Va. June 25, 1998)] ("[T]he Alevromagiros expert failed to conduct tests on the allegedly defective product, did not refer to any literature in the field, and did not consult industry standards. Conversely, the expert in Freeman reviewed published reports, inspected

the product at issue, and performed tests on the product." (citations omitted)); [Lemons v. Ryder Truck Rental, Inc., 906 F. Supp. 328, 332 (W.D. Va. 1995)] (asserting that Alevromagiros required "an expert opinion based on extensive testing and published reports" and that Bartholomew held "that an expert opinion had proper foundation where the expert studied relevant federal manuals and data, consulted with other experts, and experimented with the specific product alleged to have caused the accident as well as several competing products" (citations omitted)).

Id. at 639; see also id. at 649 ("An opinion is analytically rigorous if it is based on, for instance, relevant literature, testing and inspection of the product, and substantial industry experience and expertise.").

The Court also found, in resolving the summary judgment motion, that Southwell's opinions were legally sufficient to establish that the subject tire was unreasonably dangerous:

Here, Southwell's testimony is certainly adequate to defeat summary judgment. He precisely identifies the two defects that he found to have caused the subject tire to rupture: failure of its components to adhere properly and oxidation due to too thin an inner liner. He extensively reviewed literature and industry sources relevant to his defect theories, and he "identifie[s] specific published materials that had directly guided his analysis." Furthermore, Southwell "applied his experience and training . . . in reviewing [these] materials," given his decades-long career in tire defect and failure analysis, his Master of Engineering degree, and his completion of multiple tire-related training courses. Southwell has also performed tests or gained specific experience validating myriad

aspects of his defect theories throughout his career. Finally, Southwell performed a "detailed inspection" of the subject tire that revealed direct evidence of the defects he alleges.

Benedict, 295 F. Supp. 3d at 649-50 (citations omitted).

2. Southwell's Testimony

Southwell's trial testimony is sufficient to defeat a Rule 50(b) motion. As an initial matter, his testimony (along with the record generally) satisfied each of the elements of a products liability claim, i.e., that "(1) the product . . . contain[s] a 'defect which rendered it unreasonably dangerous for ordinary or foreseeable use'; (2) the defect . . . 'existed when it left the defendant's hands'; and (3) the defect . . . 'actually caused the plaintiff's injury.'" See Benedict, 295 F. Supp. 3d at 637 (citations omitted).²² Southwell described, in a comprehensive manner, the defects in the subject tire that caused it to be unreasonably dangerous for ordinary or foreseeable use and, ultimately, to fail. Trial Tr. 133-98. Furthermore, he characterized those defects as occurring in the

²² There is no dispute that the accident caused Benedict's injuries or that the failure of the subject tire caused the accident. See Trial Tr. 423-25. Causation could therefore be proved by showing that an unreasonably dangerous defect in the subject tire caused it to fail. That means that, in this case, the issue of whether the subject tire was unreasonably dangerous largely overlaps the issue of causation. And, given that the defects alleged in this case all related to flaws in the way the subject tire was manufactured, the issue of whether any defects existed in the subject tire at the time it left Defendants' hands is closely tied to the issue of whether the subject tire was unreasonably dangerous as well.

manufacturing process, i.e., they arose before the subject tire left Defendants' hands. See Trial Tr. 144-45, 160, 162-63, 168-69, 174, 185. And, he addressed and disproved alternative potential causes of the subject tire's failure and condition, and found no "other bases or reasons for [the subject] tire to come apart the way it did other than the" defects he alleged. Trial Tr. 164, 198-205, 293-95.²³

Southwell also explained why the subject tire was unreasonably dangerous in an analytically rigorous manner. At trial, as in his pretrial report, Southwell "precisely identifie[d]" and described in detail "the two defects that he found to have caused the subject tire to rupture" and that rendered the subject tire unreasonably dangerous: (1) failure of the internal components of the subject tire to adhere properly due to scorch, as evidenced by liner imprints; and (2) oxidation due to the subject tire having a halobutyl inner liner with a gauge below 2.0 millimeters. See Benedict, 295 F. Supp. 3d at 649-50 (citations omitted); Trial Tr. 133-98. And, as noted above, he ruled out alternative theories of the subject tire's failure and condition. Trial Tr. 164, 198-205, 293-95.

Additionally, Southwell's opinions were supported by his consideration and knowledge of relevant publications. See Trial Tr. 140, 160-61, 168, 184, 189, 198, 207, 297-98. Southwell identified

²³ Southwell also determined that the subject tire was being used in an intended and foreseeable manner before it failed. Trial Tr. 124-25; see also Trial Tr. 205-06.

five public sources supporting the liner imprint theory. See Trial Tr. 297-98. Although Southwell's other descriptions of the literature supporting his conclusions were more generalized, he testified that this literature was "scientific literature," "literature in the field of chemistry and tire engineering," "published studies that are available and research," "documentation and research in the public domain," "recognized scientific literature" "in the field regarding inner liner thickness and oxidation," "published research about the gauge of inner liners in truck and bus tires," and "literature in the field." See Trial Tr. 140, 160-61, 168, 184, 189, 198, 207, 297-98. There is no doubt that Southwell's conclusions were supported by "a review of the literature." See Benedict, 295 F. Supp. 3d at 639.²⁴

Southwell's opinions, furthermore, were grounded in objective experience, training, and testing. Southwell has a Master's degree in engineering and is qualified as a technician and engineer. Trial Tr. 105, 111. He has also enjoyed a lengthy career in the tire

²⁴ Southwell's opinions might have been considered to be more analytically rigorous had he enumerated the sources he considered. See Freeman, 118 F.3d at 1017 ("[The expert] clearly applied his expertise and knowledge of the published sources and drew from his detailed inspection of the product itself in evaluating the configuration at issue here. Significantly, he identified specific published materials that had directly guided his analysis."). However, the Court does not read Freeman or the other applicable case law as holding that a more generalized description of some of the literature reviewed is fatal to a products liability claim as a matter of law. See id. at 1016-17.

industry, focused on understanding how and why tires fail (including obtaining specific training, inspecting and analyzing tires, and training others in tire failure analysis). Trial Tr. 105-114. Indeed, Southwell has inspected more than 15,000 failed truck tires over the course of his career. Trial Tr. 113-14. And, importantly, each of Southwell's opinions was based on his experience and training. See Trial Tr. 133, 153-55, 160, 168, 184, 189, 198, 207; see also Trial Tr. 296. Southwell's liner imprint theory, moreover, was based upon and substantiated by specific testing (in which Southwell was involved) in the early 1990s at Bridgestone Australia. Trial Tr. 153-55.

Lastly, Southwell relied on an inspection of the subject tire and a review of related materials. Trial Tr. 161, 189, 207. Southwell conducted "a visual and tactile inspection" of the subject tire "on two occasions." Trial Tr. 115. Those inspections were supplemented by a review of, inter alia, the police report, accident scene photographs, fire and EMS documents, "459 photographs of the truck and the tires," "an additional 280 photographs of the tire that [Southwell] took [himself] at the time of inspection," "x-rays of the subject tire to understand the position of the components within the tire," litigation materials, and Defendants' documents (including product specifications and processes). Trial Tr. 115-16, 161, 189-90. As to the liner imprint theory, Southwell's inspection

revealed "11 separate areas in [the subject] tire of liner pattern mark," which he was able to photograph and which he characterized as "extensive." Trial Tr. 139, 157-58. As to the inner liner/oxidation theory, Southwell measured the subject tire's inner liner "in 18 separate locations," found that the average measurement was 1.8 millimeters (with a high of 2.2 and a low of 1.6, although only 2 measurements were 2 millimeters or more), and uncovered physical evidence of oxidation by visual and tactile assessment. Trial Tr. 167-68, 181-82, 184. In short, "Southwell performed a 'detailed inspection' of the subject tire that revealed direct evidence of the defects he alleges." See Benedict, 295 F. Supp. 3d at 650 (citations omitted).²⁵

In sum, Southwell "did not simply opine on the basis of his 'own subjective opinion.'" See Freeman, 118 F.3d at 1016. Instead, he "clearly applied his expertise and knowledge of the published sources and drew from his detailed inspection of the product itself" in explaining why the subject tire contained defects which rendered it unreasonably dangerous for ordinary or foreseeable use. See id. at 1017. And, Southwell's testimony established that the defects both existed when the subject tire left Defendants' hands and caused the accident. That is all that was legally required.

²⁵ Southwell also clearly relied on his inspection, materials, and experience in ruling out other theories of why the subject tire failed. See Trial Tr. 199-205, 207.

3. Defendants' Arguments

In perspective of the foregoing, Defendants' arguments against Southwell's testimony are unavailing.

i. The Storage Standard Arguments

Defendants' first contend that Southwell failed to establish a "standard" for the storage of rubber components or to determine whether Defendants violated any standard. Defs.' Br. 12-14. However, Southwell was not required to present any such standard. Had there been a true "industry standard," that would have triggered the industry standard analysis under the Virginia products liability framework. But, Southwell testified that there is no industry standard applicable to rubber storage (because the standard would be manufacturer- and compound-specific), and Defendants have not shown, or even argued, that any such standard exists. See Trial Tr. 250. Thus, Benedict could proceed under the "expert safety" step.

Additionally, it was legally and logically permissible for Southwell to infer from the existence of liner imprint marks that the subject tire's components were scorched, i.e., had been stored too long to prevent inadequate adhesion. See Trial Tr. 137-48, 153-55, 250. It is well-established that inferences from circumstantial evidence are lawful. See Desert Palace, Inc. v. Costa, 539 U.S. 90, 100 (2003); Owens-Corning Fiberglas Corp. v. Watson, 413 S.E.2d 630, 639 (Va. 1992). And, circumstantial evidence was

necessary here, given that there is no applicable industry standard on storage and that "[t]here's no evidence of how long [the rubber] was stored or how long it should have been stored." See Trial Tr. 250-51. Southwell's inference was also logically sufficient to prove a defect. By way of analogy, one could certainly infer that a steak is overdone, i.e., has spent too much time on the grill, based on circumstantial evidence (e.g., extensive charring, dark center, dry flavor) without: (a) establishing a standard for the amount of time on the grill that is typically too much; or (b) showing how long the steak was actually on the grill.

Finally, as set out above, Southwell testified at length as to how liner imprint marks are probative of an unreasonably dangerous manufacturing defect and to the liner imprint marks he found in the subject tire, and he based his conclusions on experience, testing, literature, inspections, etc. Trial Tr. 138-161, 207, 297-98. His opinions were legally sufficient, and the jury could reasonably have believed his testimony.

ii. The Liner Imprint Theory Arguments

Defendants further contend that Southwell's opinion was not analytically rigorous because he provided no support for the liner imprint theory, could not identify any publicly available testing that supported that theory, and could not provide any data or photographs from the internal Bridgestone testing that he did rely

upon to substantiate his theory. Defs.' Br. 14. But, as set out above, Southwell identified five public sources supporting the liner imprint theory and otherwise explained that there is substantial literature that informed his opinion and bolstered his conclusion. See Trial Tr. 140-41, 160-61, 297-98. Furthermore, although the Bridgestone testing was not public (and Southwell did not have documentation available), Southwell described the testing and its results in detail, and he testified, on the basis of his personal knowledge, that, based on the results, Bridgestone "effectively eliminated the problem of scorch occurring before the tire was built in [a particular] factory for [a particular] product." See Trial Tr. 153-56, 251-54, 296-98.²⁶ And, of course, that testing informed his experience and his objective understanding of why tires fail, which he applied here in inspecting and analyzing the subject tire. Cf. Trial Tr. 252-53 ("What I left Bridgestone with was a very clear understanding of the causes of liner pattern mark and the contribution to tire failure."). As set out above, it is abundantly

²⁶ Southwell explained that the testing was performed because "another steer tire" "started to have in the market some pretty significant early life failures." Trial Tr. 153-54. Accordingly, Southwell and others performed "a very exhaustive investigation as to why these tires were failing" by inspecting about 100 tires from the market and others that had been manufactured at a similar time, and "one of the very clear things [they] found was liner pattern marks very similar to those" on the subject tire. Trial Tr. 153-54. They then traced those liner pattern marks to scorch "in some of the belt components," which they corrected by, in essence, reducing component storage time. Trial Tr. 154-55.

clear that Southwell's liner imprint opinion was "based on, for instance, relevant literature, testing and inspection of the product, and substantial industry experience and expertise." See Benedict, 295 F. Supp. 3d at 649.

Defendants highlight the fact that Grant identified a study that contradicted Southwell's liner imprint theory and himself performed a study that did so. Defs.' Br. 14-15. However, under Rule 50, "the Court must not weigh the evidence or make credibility determinations and must draw all inferences in favor of the non-movant" and "[i]f 'the evidence as a whole is susceptible of more than one reasonable inference, a jury issue is created and a motion for judgment as a matter of law should be denied.'" Federico v. Mid-Atlantic Military Family Communities, LLC, 2:12-cv-80, 2016 WL 4472961, at *2 (E.D. Va. Aug. 23, 2016) (citations omitted); see also Huskey, 848 F.3d at 156; Kivanc, 714 F.3d at 795. Here, the jury could reasonably have believed Southwell over Grant, and, in fact, it is obvious that the jury chose to do precisely that.

iii. The Inner Liner Standard Arguments

Defendants similarly maintain that Southwell "offered no evidence of the standard of care for the innerliner thickness during Plaintiff's case-in-chief" and that "the only evidence of an industry standard for innerliner gauge was a study by ExxonMobil" improperly admitted in rebuttal. Defs.' Br. 15.

As an initial matter, Southwell was not required to present an "industry standard" as to inner liner thickness. Again, if an "industry standard" existed, that would have triggered the industry standard analysis. But, as Defendants argue, "the only evidence of an industry standard for innerliner gauge was a study by ExxonMobil," which the Court has already ruled is "industry literature," not an "industry standard." See Benedict, 295 F. Supp. 3d at 649 n.12.²⁷ "Absent an established norm in the industry, it was a matter of opinion of trained experts [whether the product] was safe for its intended use." See Bartholomew, 297 S.E.2d at 679.

²⁷ That remains true even if, under Evans, widespread industry practices could constitute an "established norm in the industry." Here, the only evidence was that the ExxonMobil study is "the document that ExxonMobil provides to their tire customers who purchase their butyl material, and it's the Bible or the guide for manufacturing tire halobutyl inner liners that's in the public domain and that specified very clearly a minimum halobutyl inner liner gauge for truck and bus tires of two millimeters." Trial Tr. 713. All that establishes is that this source is important and supports Southwell's view, not what halobutyl inner liner gauge manufacturers typically employ.

It is true that Grant testified that an inner liner (including all layers) above 2.5 millimeters is "best in class" and "what inner liners . . . in all steel truck tires are -- and with high technology are actually designed to have." Trial Tr. 684-85. And, he explained that the method by which Defendants measure the entirety of their inner liner (i.e., by measuring to the steel cord) is similar to that of other tire manufacturers. Trial Tr. 680-81. Those conclusions, however, did not relate to the thickness of the halobutyl portion of a tire, which is what Southwell testified was too thin. Trial Tr. 165-68, 710. In any case, these statements by Grant are not sufficient to demonstrate an "established norm in the industry," and, indeed, Defendants do not so contend.

Furthermore, although Southwell did not directly discuss the ExxonMobil study during Benedict's case-in-chief, he did fully explain why the subject tire's inner liner was too thin and how that made the subject tire unreasonably dangerous. See Trial Tr. 161-69, 181-85. Indeed, as to inner liner gauge specifically, he determined that, based on "several years of experience in the tire industry," "published studies that are available and research," "experience in tire design and manufacture and failure analysis," and "published research about the gauge of inner liners in truck and bus tires," a (halobutyl) inner liner should be "[a]t least 2 millimeters at every point." See Trial Tr. 168, 198. And, his opinion that the subject tire was defective was based upon that objectively-reached conclusion (as well as inspections of the subject tire and review of materials). Trial Tr. 167-68, 184-85, 189-90, 198, 207. In short, as set out above, Southwell's opinion was legally permissible and certainly adequate to have been believed by the jury.

Defendants point to the fact that the testimony about the ExxonMobil study was improperly admitted as rebuttal evidence. Defs.' Br. 16. However, that issue is irrelevant to whether Southwell's testimony was sufficient to sustain Benedict's claim. The Court addresses the propriety of admitting the evidence below.²⁸

²⁸ Defendants suggest that the ExxonMobil study supports their position because "the total innerliner of the Subject Tire was within

iv. The Inner Liner Measurement Arguments

Defendants assert that the inner liner was not too thin, but rather that "Southwell failed to measure all the layers of the innerliner." Defs.' Br. 17-18. They argue that Grant testified that the full inner liner was 2.5 millimeters and that Southwell agreed that an inner liner of that gauge would not be defective. Defs.' Br. 17.

It is true, as Defendants note, that Southwell believed that he had measured all layers of the subject tire's inner liner but, in reality, appears to have only measured the halobutyl layer. See Defs.' Br. 17; Trial Tr. 172-73, 187-88, 522-23, 677-81. Defendants' evidence established that the first layer of the inner liner was halobutyl, whereas the other layers were made of other materials. See Trial Tr. 522-24, 679. And, is also true that Southwell stated that, if the inner liner were 2.5 millimeters or greater, the subject tire would not be defective, and that Grant found that the whole inner liner was over 2.5 millimeters. Trial Tr. 254, 684-85.

Southwell clarified, however, after hearing Defendants' evidence, that only the halobutyl layer was the inner liner and that the halobutyl layer had to be 2 millimeters or more. See Trial Tr.

the accepted range of the Exxon Study." Defs.' Br. 15. As noted above, the ExxonMobil study required the halobutyl portion of a tire to be at least 2 millimeters. Trial Tr. 713. The evidence established that the halobutyl layer of the subject tire was below that, even if the subject tire had other, non-halobutyl layers. Trial Tr. 167-68, 677. The ExxonMobil study, then, does not support Defendants.

709-710, 713 ("If it's not halobutyl rubber, it's not inner liner. It's as simple as that."). That understanding comports with his testimony during Benedict's case-in-chief. Trial Tr. 165-66, 176, 187-88. And, Southwell explained that the inner liner he measured (i.e., the halobutyl layer) was thinner than 2 millimeters. See Trial Tr. 167-68. Accordingly, on the record, the jury could reasonably have found that the halobutyl layer of the inner liner must be at least 2 millimeters thick, wholly apart from whatever other layers it has; that the halobutyl layer of the subject tire's inner liner was thinner than 2 millimeters; and, therefore, that the subject tire was defective.

That conclusion is underscored by other evidence. First, Southwell actually uncovered oxidation in the subject tire, which is the flaw that would result if the inner liner were too thin. See Trial Tr. 161-67, 181-82, 184. Second, in closing argument, Defendants conceded that the halobutyl portion of an inner liner prevents air permeation and that the other layers serve different purposes. Trial Tr. 833. Chun's trial testimony substantiated that concession. Trial Tr. 522-24. Third, Grant agreed that the halobutyl layer was thinner than 2 millimeters. Trial Tr. 677.

Defendants also point to their own evidence as to inner liner gauge. Defs.' Br. 17-18. They assert that the evidence showed that the proper method of measuring a multi-layer inner liner is to include

all inner liner layers and up to the bottom of the steel cord, that all three layers totaled to above 2.5 millimeters in the subject tire, and that a TH08 tire manufactured shortly after the subject tire was made was tested and exceeded Defendants' specifications. Defs.' Br. 17-18. Again, however, the Court does not weigh the evidence on a Rule 50 motion, and Benedict's evidence was legally sufficient. Moreover, none of Defendants' evidence even goes to the issues raised by Southwell, *i.e.*, how thick the halobutyl portion of the inner liner should be to prevent air permeation (however a "total" inner liner is defined or measured) and how thick that portion of the inner liner was on the subject tire. See Trial Tr. 524, 538, 559, 680, 684-85. Indeed, Chun explained that Defendants include all three layers in their inner liner measurement because, even though the halobutyl layer is the layer designed to prevent air leakage, the inner liner serves multiple functions and Defendants wish their measurements to capture those varied functions. Trial Tr. 522-24. And, he testified that Defendants use the steel cord to begin the inner liner measurement simply because the non-inner liner rubber "below the cord is very difficult to identify" (which Grant confirmed is common). Trial Tr. 524, 680-81. In short, the evidence is legally sufficient to support Benedict's claim, and the evidence to which Defendants point does not alter that conclusion.

v. The Oxidation Arguments

Defendants further argue that judgment should be entered in their favor because Southwell did not measure or quantify oxidation, even though tests were available to do so. However, Southwell explained that he found evidence of oxidation based on appearance and feel; that measuring oxidation would have required destroying some of the evidence; that measuring oxidation was not necessary to determine that it had occurred in the subject tire; that he was able to detect oxidation based on "having inspected many thousands of failed tires and had the opportunity to compare different compounds and the way they oxidize"; and that his opinion was based on training and literature. Trial Tr. 181-84. For the reasons set out above, Southwell's opinion was legally sufficient, and the Court finds nothing wrong with his failure to quantify the amount of oxidation.²⁹

Defendants additionally maintain that their expert demonstrated that the subject tire's rubber was not brittle. Defs.' Br. 18. It is true that Grant disagreed with Southwell's findings and attempted to show the jury that "the rubber is still supple." Trial Tr. 675-76. But, Southwell was well-trained in assessing

²⁹ Defendants also vaguely suggest that Southwell failed to link the oxidation he observed to the gauge of the inner liner. Defs.' Br. 18. That is not so. He expressly described how a halobutyl inner liner prevents air permeation and oxidation; that the air that causes oxidation is from inside the tire (i.e., that which is held in by the inner liner); and that the oxidation here was not caused by post-accident storage. See Trial Tr. 163-66, 293-94.

oxidation and clearly explained the basis for his findings. See Trial Tr. 162-66, 181-84, 293-94. The jury reasonably chose to believe Southwell and chose not to accept Grant's views as credible.

vi. The Quality Assurance Arguments

Finally, throughout their brief, Defendants point to evidence of their quality control procedures. Defs.' Br. 13-14, 18-19. As a threshold matter, Benedict did not need to prove that Defendants actually failed to exercise due care in establishing the quality assurance procedures. Defendants' quality control measures make the existence of a defect less likely, perhaps, but the jury could reasonably have found that, whatever Defendants' quality control procedures, they were not enough to prevent the unreasonably dangerous defects of which Southwell found direct evidence. And, moreover, Southwell testified "that the quality control processes in [Defendants'] factory are inadequate to ensure that tires are reliably 100 percent released in a safe state from the manufacturing plant" based on his "experience in the tire industry over an extended period of time" and "the material that [he] reviewed in this case." Trial Tr. 708-09. In any case, Benedict's evidence was legally sufficient to support his claim, and Defendants' evidence about the quality assurance procedures does not warrant judgment as a matter of law in their favor.

II. Defendants' Arguments that the ExxonMobil Study Was Improper Rebuttal Evidence

Defendants raise the argument, irrelevant to the sufficiency of Southwell's testimony, that the Court should not have permitted Southwell to discuss the ExxonMobil study in rebuttal. Defs.' Br. 16. They claim that this evidence did not rebut anything in Defendants' case, given that "the Exxon Study had not been admitted into evidence or discussed (since the Court struck Grant's testimony concerning the study)." Defs.' Br. 16. They claim that this was not harmless error because the jury raised a question about the ExxonMobil study. Defs.' Br. 16 n.5.

A. Rebuttal Evidence

The Fourth Circuit has made clear the standard applicable to rebuttal evidence. "'Rebuttal evidence is defined as evidence given to explain, repel, counteract, or disprove facts given in evidence by the opposing party' or '[t]hat which tends to explain or contradict or disprove evidence offered by the adverse party.'" United States v. Byers, 649 F.3d 197, 213 (4th Cir. 2011) (citations omitted). "Evidence offered in rebuttal 'may be introduced only to counter new facts presented in the defendant's case in chief.'" Id. (citations omitted).

B. The Ruling & Analysis

When called in Benedict's rebuttal case, Southwell began to explain "the basis for [his] opinion that the halobutyl portion of

an inner liner has to reach a specific gauge." Trial Tr. 710. In so doing, Southwell referred to a document published by ExxonMobil that the company provides to its customers. Trial Tr. 710. Defendants objected on the ground that this testimony was improper rebuttal evidence. Trial Tr. 710-12. The Court overruled the objection because Defendants' expert, Grant, had said that "he was amazed by the fact that Mr. Southwell thought an inner liner needed to reach 2.0 millimeters" and "[got] back into" the issue of whether the subject tire's inner liner was "best in class." See Trial Tr. 711-12. Southwell then testified that his opinion was based on, inter alia, "the document that ExxonMobil provides to their tire customers who purchase their butyl material, and it's the Bible or the guide for manufacturing tire halobutyl inner liners that's in the public domain and that specified very clearly a minimum halobutyl inner liner gauge for truck and bus tires of two millimeters." Trial Tr. 713.

Grant did in fact say that he "was amazed" by Southwell's view as to inner liner gauge. Trial Tr. 697. However, the Court granted Benedict's motion to strike that testimony. Trial Tr. 697. Likewise, Grant mentioned that the halobutyl layer of the subject tire's inner liner was: "best in class in world for halobutyl content. There's an ExxonMobil study that basically said --" Trial Tr. 677. Again, however, the Court sustained Benedict's objection and ordered the testimony stricken. Trial Tr. 678. Accordingly, some of the evidence

related to the Court's admission of Southwell's rebuttal testimony about the ExxonMobil study had, in fact, been stricken.

However, that does not end the analysis. To begin, Defendants' objection to Southwell's testimony was overruled because Grant "did get back into the very issue of the best in class." Trial Tr. 712 (emphasis added). In unstricken testimony, Grant stated that the thickness of the subject tire's inner liner (including all layers): "is what I call best in class. I mean, this is what inner liners and steel -- in all steel truck tires are -- and with high technology are actually designed to have." Trial Tr. 684-85. Southwell's clarification that prominent and published industry literature supported and provided the basis for his view that the inner liner was defectively thin (and, hence, not actually "best in class") was responsive to Grant's testimony and his attack on Southwell's opinion. Therefore, the explanation of why Grant's opinion was wrong was indeed proper rebuttal evidence.

Second, Defendants presented evidence (including the testimony by Grant set out above) to support the proposition that Defendants' inner liner included multiple layers and that, if all those layers are considered, the inner liner was not too thin. See Trial Tr. 522-24, 528, 538-39, 679, 684-85. Explaining that important industry literature supported (and contributed to) Southwell's view that the halobutyl portion of a tire must be of a certain gauge countered

Defendants' evidence on that point. The ExxonMobil study was properly admissible to help rebut that evidence.

III. Defendants' Arguments that the Verdict Is Against the Clear Weight of the Evidence

Defendants contend that the evidence, as a whole, does not support the verdict and, therefore, a new trial is warranted. Defs.' Br. 19-22.

Defendants maintain that their expert testified that the accident was caused by an impact that had occurred sometime between the event and 200 driving miles before the event. Defs.' Br. 19. According to Defendants, that is supported by cogent, scientifically-based reasoning and "a number of relevant treatises." Defs.' Br. 19-20. And, they argue that Grant observed "multi-level tearing across multiple belts," which undercut Southwell's liner imprint/adhesion theory. Defs.' Br. 20. They claim that Southwell "offered no reliable support for his liner pattern mark and innerliner gauge opinions" and "could not provide any scientifically reliable data to rebut Grant's opinions." Defs.' Br. 20. Further, Defendants assert that "Southwell failed to provide a common sense explanation as to why the manufacturing defects did not manifest themselves until 9 years after the Subject Tire was manufactured." Defs.' Br. 20-21. These arguments are unavailing.

First, although Grant contended that an impact within 200 miles of the accident had caused the tire failure and gave a series of reasons for his opinion, Southwell convincingly set forth his own explanation of why the subject tire failed and expressly rejected impact as the cause of the failure. See Trial Tr. 133-98, 199-205, 601-15. Both experts, moreover, explained why they disagreed with each other's theories. See Trial Tr. 199-205, 601-622, 665-85, 710, 713-17. This is a classic "battle of the experts" situation, and the Court cannot find that the jury's decision to believe one expert over another was against the clear weight of the evidence.

Second, as set forth above, Southwell's opinions were all based on, inter alia, his "education, qualifications, review of the materials in this case, and . . . on literature in the field." Trial Tr. 207. In the Court's view, his theories and opinions were sufficiently supported for the jury to believe him. Although Grant relied on his own literature, qualifications, etc., that did not render the jury's decision to accept Southwell to be contrary to the clear weight of the evidence. See, e.g., Trial Tr. 575, 592, 657-60, 665, 670-75.

Third, the argument that "Southwell failed to provide a common sense explanation as to why the manufacturing defects did not manifest themselves until 9 years after the Subject Tire was manufactured" falls flat. Southwell directly explained why the

subject tire did not fail immediately. He stated: "the fact that there are liner pattern marks and areas of inadequate adhesion doesn't mean that the tire wasn't partially stuck together. It was in the areas where there is no evidence of inadequate adhesion." Trial Tr. 158. Similarly, he averred:

The tire was stuck together to an extent, but then the progression to failure doesn't happen overnight. It's the case of -- particularly in combination with the other defect that we were talking about -- it's the case of the areas of inadequate adhesion continuing to break down to the point where at some point in time, and nobody can determine when that was or when that is, a large piece of the tire becomes detached in service.

You've got this tire rotating around at 50 miles per hour, something like that, and you've got all this weight, this mass of heavy tread and steel belt rotating around the outside on the tire. That's generating a centrifugal force. I'm sure everybody -- I hope everybody knows what centrifugal force is. It's the force that tries to throw things out when they're rotating.

So the adhesion between the components has to resist that centrifugal force. And when the adhesion between the components breaks down to a sufficient extent, the centrifugal force will cause the tread and belt to become detached. And, of course, once you get a small part of the detachment, you don't need much of the tread and belt to become detached, this rotating tire will become delaminated and a large piece, such as we see on the ground there, will become detached.

Trial Tr. 158-59. And, moreover, he testified that the subject tire had a similar service life to those tires analyzed as part of the

liner imprint testing at Bridgestone. Trial Tr. 298 ("So while this tire here is chronologically older, it is very similar in terms of its life to the tires in which liner imprint was causing a problem in Australia."). Defendants may not like Southwell's theory or his explanation, but the jury was free to accept it and obviously did so. A new trial is not warranted on that ground.

Weighing the evidence more generally, moreover, the Court is convinced that a new trial is not warranted. Benedict provided legally sufficient evidence to support a finding of liability. His evidence was compelling and believable. Defendants raised evidence presenting another view. But, the evidence did not "clearly" favor Defendants. The outcome was for the jury to decide, and, in the end, the jury believed Benedict's evidence.³⁰

IV. Defendants' Argument that the Jury Award Would Result in a Miscarriage of Justice

Defendants further claim that the jury verdict, \$37,835,259.23, was excessive. Defs.' Br. 28. Their arguments are unpersuasive, but

³⁰ In their reply brief, Defendants also point to their evidence of quality control measures. Defs.' Reply Br. 12. However, the evidence supported a finding that Defendants' quality assurance procedures were insufficient to prevent the defects that Southwell found. And, as noted above, Southwell testified "that the quality control processes in [Defendants'] factory are inadequate to ensure that tires are reliably 100 percent released in a safe state from the manufacturing plant." Trial Tr. 708-09.

the Court will grant a moderate remittitur on grounds that Defendants did not raise.

A. Standards Applicable to Jury Awards

As the Fourth Circuit has held, in a diversity case governed by Virginia law, "[w]hether th[e] verdict should be set aside as excessive is a matter of Virginia law." See Stamathis v. Flying J, Inc., 389 F.3d 429, 438 (4th Cir. 2004). Under Virginia law, the following principles govern setting aside a verdict on the ground of excessive damages:

A trial court may set aside a verdict because it is excessive if the amount awarded shocks the conscience of the court either because it indicates "the jury has been motivated by passion, corruption or prejudice" or "has misconceived or misconstrued the facts or the law," or because it is so disproportionate "to the injuries suffered as to suggest that it is not the product of a fair and impartial decision."

Gov't Micro Res., Inc. v. Jackson, 624 S.E.2d 63, 71 (Va. 2006) (emphasis added) (citations omitted). Furthermore, the Supreme Court of Virginia has "specifically rejected comparing damage awards as a means of measuring excessiveness." Allied Concrete Co. v. Lester, 736 S.E.2d 699, 708 (Va. 2013).³¹

³¹ Defendants argue in their reply brief that the propriety of using "verdict comparisons" to assess the excessiveness of jury verdicts is a matter of procedure, not substance, and that therefore this Court should apply federal law permitting verdict comparisons. Defs.' Reply Br. 13-14, 14 n.9. They state that there is no case on point.

Defs.' Reply Br. 14 n.9.

The Court disagrees with Defendants. In Gasperini v. Center for Humanities, Inc., the Supreme Court of the United States held that, "[i]n light of Erie's doctrine, the federal appeals court must be guided by the damage-control standard state law supplies." Gasperini v. Ctr. for Humanities, Inc., 518 U.S. 415, 438 (1996). In that case, the Supreme Court was analyzing a New York statute that required courts to find an award "excessive or inadequate if it deviates materially from what would be reasonable compensation," and New York courts analyzed that issue by "look[ing] to awards approved in similar cases." Id. at 423, 425 (citations omitted). The Supreme Court in no way distinguished between what the standard for excessiveness is and how excessiveness is proved. Indeed, the Court expressly stated that "New York's dominant interest can be respected, without disrupting the federal system, once it is recognized that the federal district court is capable of performing the checking function, i.e., that court can apply the State's "deviates materially" standard in line with New York case law evolving under [the New York statute at issue]." Id. at 437. That case law relied on verdict comparisons. Id. at 425.

Likewise, in French v. Wal-Mart Stores, Inc., the Fourth Circuit, by unpublished opinion, held that Virginia substantive law controls the issue of verdict comparisons. The Court stated: "Wal-Mart further argues that the district court should have examined comparable Virginia cases, and that if the court had done so, it would have concluded that an award of \$1 million to French was excessive. We disagree. The district court is not required to review previous awards in similar cases; indeed, Virginia law appears to caution against such an approach." French v. Wal-Mart Stores, Inc., 188 F.3d 501, 1999 WL 638596, at *9 (4th Cir. 1999) (per curiam) (table) (emphasis added). Note that there was some ambiguity as to whether Virginia prohibited verdict comparisons until about 2004 (i.e., until after French was decided), although the Supreme Court of Virginia has indicated that the "average verdict rule" was rejected as early as 1925. See Allied Concrete, 736 S.E.2d at 708; John Crane, Inc. v. Jones, 650 S.E.2d 851, 858 (Va. 2007); Rose v. Jaques, 597 S.E.2d 64, 77 (Va. 2004).

Defendants point to Stienke v. Beach Bungee, Inc. to support their position, but that case dealt with jury verdicts under South Carolina law. Defs.' Reply Br. 14 n.10; Stienke v. Beach Bungee, Inc., 105 F.3d 192, 197-98 (4th Cir. 1997). Defendants note that the Fourth Circuit relied on opinions from the Fifth and Second Circuits "when

B. Defendants' Arguments that the Non-Economic Damages are Excessive

Defendants' primary argument is that the verdict is excessive because it "is the largest in a tort case [not involving punitive damages] . . . in the Commonwealth in at least the last ten years." Defs.' Br. 24, 24 n.9. They point to a variety of example cases to support their view that the verdict is too large. Defs.' Br. 25-28.

directing the district court to engage in a verdict comparison." Defs.' Reply Br. 14 n.10. Although those cases do support verdict comparisons to limit (and review) a district court's discretion, they likewise make clear that state substantive law is central to the excessiveness analysis. See Imbrogno v. Chamberlin, 89 F.3d 87, 90 (2d Cir. 1996); Douglass v. Delta Air Lines, Inc., 897 F.2d 1336, 1339 (5th Cir. 1990). And, neither Steinke nor the federal cases it cited dealt with the unique issue presented here, i.e., whether verdict comparisons are proper where state law affirmatively prohibits them. See Steinke, 105 F.3d at 197-98; Imbrogno, 89 F.3d at 89-90; Douglass, 897 F.2d at 1339-45.

Additionally, Defendants highlight Richardson v. Boddie-Noell Enterprises, Inc., which did compare the award at issue to similar Virginia verdicts to affirm the decision of the district court. Defs.' Reply Br. 14; Richardson v. Boddie-Noell Enters., Inc., 78 F. App'x 883, 890 (4th Cir. 2003). But, (like French) that decision was rendered before Virginia had clearly banned such comparisons. In any case, that decision was unpublished and the court did not explain why it was relying on similar awards; it does not persuade this Court that relying on verdict comparisons, especially in perspective of recent Virginia case law on the subject, is proper.

Finally Defendants cite language in cases out of this district, Jones v. SouthPeak Interactive Corp. of Delaware, 982 F. Supp. 2d 664 (E.D. Va. 2013), aff'd, 777 F.3d 658, 678 (4th Cir. 2015) and Filkins v. McAllister Bros., Inc., 695 F. Supp. 845 (E.D. Va. 1988). But, neither of these cases arose under Virginia (or even state) law. See Jones, 982 F. Supp. 2d at 667-68; Filkins, 695 F. Supp. at 849. And, Filkins was decided before the Supreme Court of the United States had clarified the law to be applied to questions of verdict excessiveness.

Comparing verdicts, however, is not a proper method of assessing the excessiveness of damages under Virginia law. Thus, the Court rejects and does not consider Defendants' case comparisons.

Defendants also claim that "[t]he vast majority of Plaintiff's case was designed to elicit the passion of the jury." Defs.' Br. 23 n.8. They contend that only one of Benedict's witnesses discussed the subject tire and that Benedict "continued to play the 'Day in the Life' video at the start of the second day of trial, despite the Court's instruction to move on from the video at the end of the first day." Defs.' Br. 23 n.8. These arguments, however, are meritless.

First, the point that Benedict only offered one witness to discuss the subject tire simply reveals that different witnesses were needed to prove different facts. The gravamen of Benedict's liability evidence did come by way of one expert "in forensic tire engineering" (although Benedict also used depositions and documents from HTCL, among other things). See Trial Tr. 114.³² But, Benedict needed several witnesses to establish his damages, given their nature, extent, and severity. For example, Benedict needed testimony by an economist to calculate economic damages, needed the testimony of a life care planner to establish future medical needs, needed the testimony of treating surgeons and doctors to describe his injuries,

³² Indeed, the Court's scheduling ORDER (ECF No. 5) prohibited more than one expert per discipline.

treatment, rehabilitation, and condition, and needed his own testimony and that of family and friends to substantiate how his injuries have affected his life. There was no one witness who could describe all of Benedict's damages, and, of course, he bore the burden to prove each harm he experienced. There was nothing improper in Benedict's witness selection.

Second, the Court never instructed Benedict to move on from the "Day in the Life" video. Rather, as the video approached a scene of Benedict in the shower, the Court noted:

Do we need to go through the shower and everything? I think maybe you may have made the point. . . . I think her descriptions are about as graphic as they could possibly be. I don't think it improves things having him having to be exposed. If there's some particular part that you need, then okay.

Trial Tr. 53. After that admonition, Benedict moved on and, the next day, only showed the remaining "minute or two left of the video," which was neither graphic nor exposing. See Trial Tr. 53, 63-65.

That leaves an substantiated claim that Benedict sought to inflame the passions of the jury. But, the Court does not find that to be so.

It is true that the testimony was, at times, emotional and often dealt with difficult topics. However, that was unavoidable, given the extraordinary harms that befell Benedict. And, he was perfectly entitled (and, indeed, required) to establish the circumstances and

severity of his injuries and how they have affected and will continue to affect his life. That counsel made a thorough presentation explaining the realities that are the result of the manufacturing defect is not a basis to conclude that the presentation sought, or did in fact, inflame the jury.

Furthermore, in closing argument, counsel for Benedict laid out a reasonable calculation of each element of non-economic damages. He asked for \$3.5 million each for the elements of past bodily injuries, physical pain, mental anguish, and inconvenience (over 3.5 years). Trial Tr. 812-15. He then asked for \$5 million each for the elements of future mental anguish, inconvenience, and physical pain. Trial Tr. 815-17. Each of these harms, in the Court's view, was well-supported by the thoroughly presented damages evidence.

Additionally, Defendants offered no conflicting evidence of damages and did not cross-examine any of the damages witnesses at trial. See Trial Tr. 23, 69, 99, 323-24, 334, 354, 387, 414. Thus, they gave the jury no basis on which to question the requested damages amount. It is unsurprising, then, that the jury awarded Benedict exactly what he sought.

Moreover, Defendants have not shown that any evidence or statements at trial were improper. They never objected to any of the

damages evidence at trial as unduly prejudicial.³³ Had there been a reasonable basis to conclude that Benedict's damages evidence was in danger of eliciting the passion of the jury, surely Defendants would have objected contemporaneously under Fed. R. Evid. 403 or otherwise countered that evidence. And, even after the fact, Defendants have pointed to no specific inflammatory evidence or statements (other than their erroneous argument respecting the "Day in the Life" video). If evidence or statements had inflamed the passion of the jury, one would think that Defendants could present a few pertinent examples.

Finally, Defendants point to the fact that "more than 75% of the award-\$29,000,000-is for non-economic pain and suffering" and that damages of "\$8,835,259.23 not only compensate Benedict for every penny of income he lost, but every item and type of medical care he may require." Defs.' Br. 25. Likewise, in their reply brief, they argue that the non-economic damages award surpassed some "upper limit" of compensation (citing a case from 1988 that was not applying

³³ There were only two objections to the damages evidence. First, Defendants objected to Dr. William McKinley's anticipated testimony as to economic damages (on the ground that he did not produce a report). Trial Tr. 260-69. The Court rejected Defendants' argument. Trial Tr. 268. Second, they prospectively requested that the Court limit Dr. Lichtblau's testimony to avoid cumulative opinions as to the necessity of treatments and life expectancy. Trial Tr. 326-27. The Court barred Dr. Lichtblau from testifying as to treatment necessity and allowed him to speak to life expectancy. Trial Tr. 326-28.

Virginia or state law, Filkins v. McAllister Bros., Inc., 695 F. Supp. 845 (E.D. Va. 1988)). Those arguments, however, are unpersuasive. As an initial matter, the mere fact that Benedict has been compensated for his medical care and wages in no way suggests that he has been compensated for his other damages, such as his emotional and physical injuries and pain and suffering. Those harms are distinct. And, here, the non-economic damages award is only about 3.3 times the economic damages (the overwhelming majority of which relate to medical care). See Trial Tr. 413-14, 425. For a person with injuries as severe as Benedict's (e.g., for a person whose life has been irreparably shattered by a catastrophic physical injury that has caused, and will continue to cause, severe pain, discomfort, health risks, debilitating physical limitations, significantly altered relationships with loved ones, and embarrassment), such an award for non-economic harm is in no way "disproportionate" or "conscience shocking" (especially in light of the foregoing analysis). See Gov't Micro Res., 624 S.E.2d at 71. That is likewise true of the total award amount. A reasonable and fully-informed juror, unmotivated "by passion, corruption or prejudice," could certainly conclude that \$29,000,000 was necessary to compensate Benedict, i.e., to make him "whole," for the extraordinary suffering that he has endured and will continue to endure and for the alteration of his entire life . See id. (citations omitted); Acuar v. Letourneau, 531 S.E.2d 316, 323

(Va. 2000) ("[T]he purpose of compensatory damages . . . is to make a tort victim whole.").

C. Why the Economic Damages Are Excessive

Defendants' arguments notwithstanding, the verdict is excessive for another reason not raised by the parties. It appears that the jury miscalculated the economic damages portion of the award on the basis of Benedict's closing argument.

In closing argument, Benedict's counsel asserted that Benedict's past medical expenses were \$2,049,675.23; that his past lost wages were \$115,545; that his future lost wages at present value would be \$560,656; and that his future life care expenses would be \$6,109,381. Trial Tr. 810-11. Benedict's counsel then requested, in total (i.e., including \$29,000,000 in non-economic damages), \$37,835,259.23, which the jury awarded. See Trial Tr. 817; Verdict.

There are two problems with that calculation, however. First, the amounts that Benedict's counsel requested equate to \$37,835,257.23, not \$37,835,259.23. Second, the evidence showed that Benedict's future lost wages at present value would be \$493,141, and that \$560,656 is the amount of lost wages before the reduction to present value. See Trial Tr. 413. Accordingly, Benedict should have sought \$37,767,742.23. And, because the jury awarded exactly what Benedict's counsel requested during closing argument (including a

\$2.00 addition error), it is clear that the jury intended to award what Benedict sought (not an alternative, greater amount).

One ground for finding a verdict "conscience shocking" is if the jury has "has misconceived or misconstrued the facts or the law." Gov't Micro Res., 624 S.E.2d at 71 (citations omitted). Here, it appears that, in a minor way, the jury did so as to the non-economic damages. The Court thus finds the verdict excessive but only to that extent.

D. Remittitur

When a federal court finds a verdict excessive, it "may grant a new trial nisi remittitur, which gives the plaintiff the option of accepting the remittitur or of submitting to a new trial." See Konkel v. Bob Evans Farms Inc., 165 F.3d 275, 280 (4th Cir. 1999) (citations omitted). Because the jury's verdict is slightly excessive, the Court will grant Defendants' motion for a new trial nisi remittitur. Benedict may agree to a new trial "upon the whole case," to a new trial "limited to the issue of damages alone," or to an award of \$37,767,742.23. See id. at 282 (citations omitted).

CONCLUSION

For the reasons, and to the extent, set forth above, the Court will deny in part and grant in part HANKOOK TIRE COMPANY LIMITED'S AND HANKOOK TIRE AMERICA CORPORATION'S MOTION FOR JUDGMENT AS A MATTER OF LAW OR, IN THE ALTERNATIVE, MOTION FOR NEW TRIAL (ECF No. 458).

It is so ORDERED.

/s/ *REP*
Robert E. Payne
Senior United States District Judge

Richmond, Virginia
Date: July 9, 2018